

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A terminal structure of a superconducting cable comprising,
a terminal member of the superconducting cable extending from a cryogenic side to a room-temperature side through a bushing, wherein
the terminal structure includes, in the cryogenic side, a refrigerant bath cooling said bushing,
said refrigerant bath includes a gaseous refrigerant layer and a liquid refrigerant layer,
and
in said gaseous refrigerant layer, the a distance between an inner surface of the refrigerant bath and an outer periphery of the bushing is dimensioned such that a gaseous state is maintained without being pressurized by a pressurizer and respective pressures of a gaseous refrigerant and a liquid refrigerant counterbalance each other;
wherein the gaseous refrigerant remains in a volume between the inner surface of the refrigerant bath and the outer periphery of the bushing;
wherein liquid Nitrogen is used as the liquid refrigerant and a pressure of the liquid refrigerant layer is maintained in the range of about 0.3 to about 0.5 MPa;
wherein the distance between the inner surface of the refrigerant bath and the outer periphery of the bushing for the gaseous layer is in the range of about 0.1 to about 2.5 mm;
and
a longitudinal dimension of the volume occupied by the gaseous refrigerant layer is in the range of about 300 mm to about 500 mm.
2. (Currently Amended) The terminal structure of the superconducting cable according to claim 1, further including comprising a leakage prevention member for preventing the liquid refrigerant from leaking into the room-temperature side.

3. (New) The terminal structure of the superconducting cable according to claim 1, wherein the liquid refrigerant layer is surrounded by a portion of the inner surface of the refrigerant bath and a portion of the outer periphery of the bushing; wherein the portion of the inner surface of the refrigerant bath and the portion of the outer periphery of the bushing are separated by a distance that narrows to form a boundary between the gaseous refrigerant layer and the liquid refrigerant layer such that the distance between the inner surface of the refrigerant bath and the outer periphery of the bushing for the gaseous refrigerant layer is narrowed to at least $1/5^{\text{th}}$ of the distance between the inner surface of the refrigerant bath and the outer periphery of the bushing for the liquid refrigerant layer.

4. (New) The terminal structure of the superconducting cable according to claim 3, further comprising a flange separates the room-temperate side of the terminal structure from the cryogenic side of the terminal structure; wherein a distance between the cryogenic side of the flange and the boundary of the liquid refrigerant layer and the gaseous refrigerant define a length dimension of the gaseous layer, wherein the length dimension of the gaseous layer is between 120 to 5000 times greater than the distance between the inner surface of the refrigerant bath and the outer periphery of the bushing for the gaseous layer.

5. (New) The terminal structure of the superconducting cable according to claim 1, wherein the gaseous refrigerant layer comprises Nitrogen.

6. (New) The terminal structure of the superconducting cable according to claim 1, further comprising a ring shaped member separates the gaseous refrigerant layer and the refrigerant liquid layer.

7. (New) The terminal structure of the superconducting cable according to claim 6, wherein the ring shaped member comprises of silicon resin.

8. (New) The terminal structure of the superconducting cable according to claim 1, further comprising a block shaped member separates the gaseous refrigerant layer and the refrigerant liquid layer.

9. (New) The terminal structure of the superconducting cable according to claim 8, wherein the block shaped member comprises silicon resin.